



**FOCUS AREA CABINET-
ENVIRONMENTAL
QUALITY
4Q FY12 Status Report
April- June 2012**

CHAIRS:

**Bo Mills
Reynold Douglas**

MEMBERS:

**Pam Beasley, Tim Bierdz,
Danny Hutcheson, Eddie Johnson,
Joe Nunes, Adrienne Royals,
Steve Williams**

Focus Areas

Environmental Quality

Supporting Environmental Sustainability

The environmental quality plan is designed to provide a comprehensive approach to protect the natural resources of our community. The goals and objectives identified in the plan reflect the ideal future we strive to achieve. These include the implementation of energy conservation practices, reduction of solid waste and the protection of the water supply. Many of these goals and key indicators are the result of proactive practices and others are mandated by federal and state law.

Key Indicator: CO2 Emissions

Policy Agenda: Reduce CO2 emissions by reducing electricity use

Performance Measure: Annual Electrical Usage

Target: Reduce usage by 1% by June 30, 2012

Staff Lead: Reynold Douglas and Steve Williams

► **Actions** for Number 1 - Reduce CO2 emissions by reducing electricity:

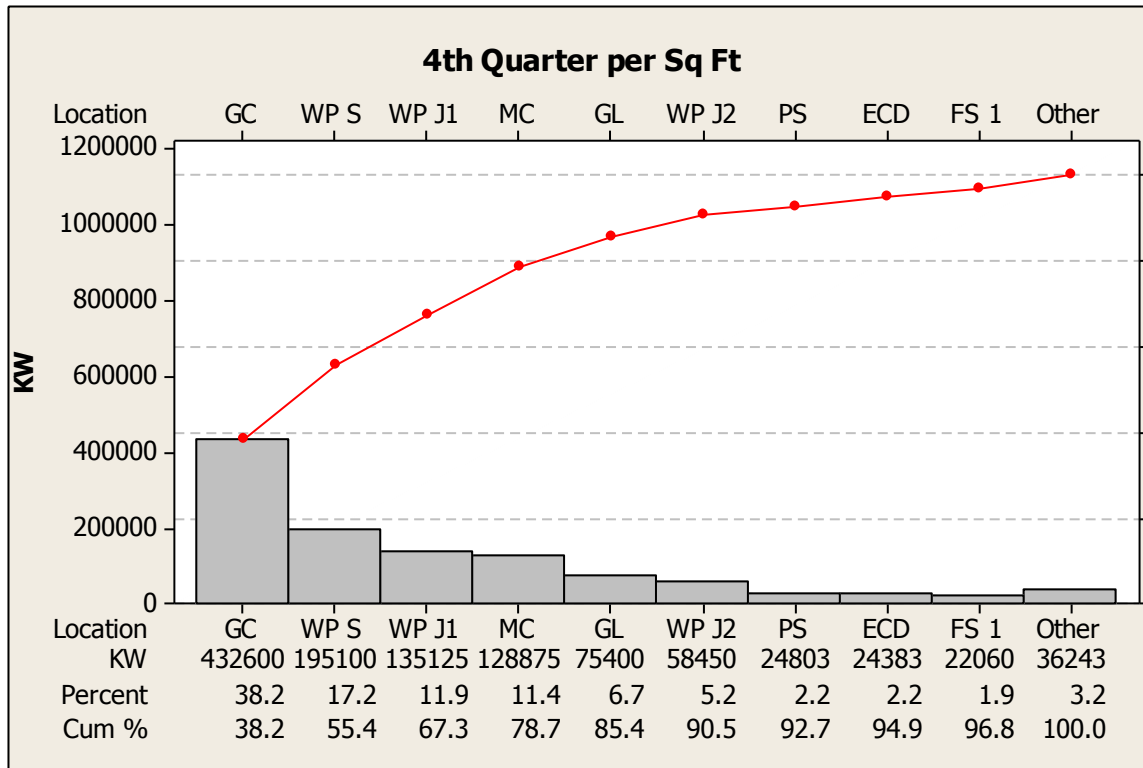
Performance Measure: Annual Electrical Usage

Target: Reduce usage by 1% by June 30, 2012

Staff Lead: Reynold Douglas and Steve Williams

The City of Germantown using a contractor performed an assessment of the City's Green House Gas Emissions Inventory using numbers from calendar year 2008 as the baseline. In 2008, the Germantown Municipal Operations generated a total of 31,190.36 metric tons of carbon dioxide equivalents (MTCO₂e). An assessment of 2009, 2010 and 2011 shows the following: 2009 – 30,093 MTCO₂e, 2010 – 30,383 MTCO₂e and , 2011 - 30230 MTCO₂e. This is proof that the City is proactive environmentally by reducing the City's overall carbon footprint by 960.36 MTCO₂e over the three year period.

The chart below shows that the Centre Complex uses 38.2% of all electrical use for city buildings. This is a 1% increase from last quarter, which was 33.4%. CIP Energy reduction programs should be focused on the Centre Complex to ensure the greatest return on investment (ROI). The increase is due to more air conditioning load within the facility.



Reports will updated quarterly. The reports will include electrical usage data from MLGW that is measured in kilowatt-hours (KWH).

Facilities

- As an ongoing improvement project, lighting upgrades at selected facilities or where applicable are being implemented. Indoor lighting upgrades will reduce energy usage and provide better lighting. Incandescent lamps are being replaced with compact fluorescent lamps. T-12 fluorescent fixtures are to be retrofit or replaced with T-8 fluorescent lamps and ballast. Where applicable, LED lamps will replace compact fluorescent lamps or incandescent lamps.
- Set points for summer temperatures have adjusted during this quarter through Building Automated Systems (BAS). Established set points help reduce energy usage, while providing a benchmark for space temperatures.

Completed Actions

- Preventative Maintenance: A/C condensers have been cleaned, belts checked/replaced as needed and filters replaced throughout City Facilities. Backflows throughout City Facilities have had repairs made if necessary and annual tests performed.
- Lighting Upgrades: Municipal- All T-12 fixtures in Triangle Rm. and Round Rm. have been retrofit to T-8's. Police Station- 100% retrofit completion of all F40T12 fixtures to F32T8's. Library- Updated all EXIT fixtures and Emergency Floods to new LED EXIT fixtures and two to combination fixtures.

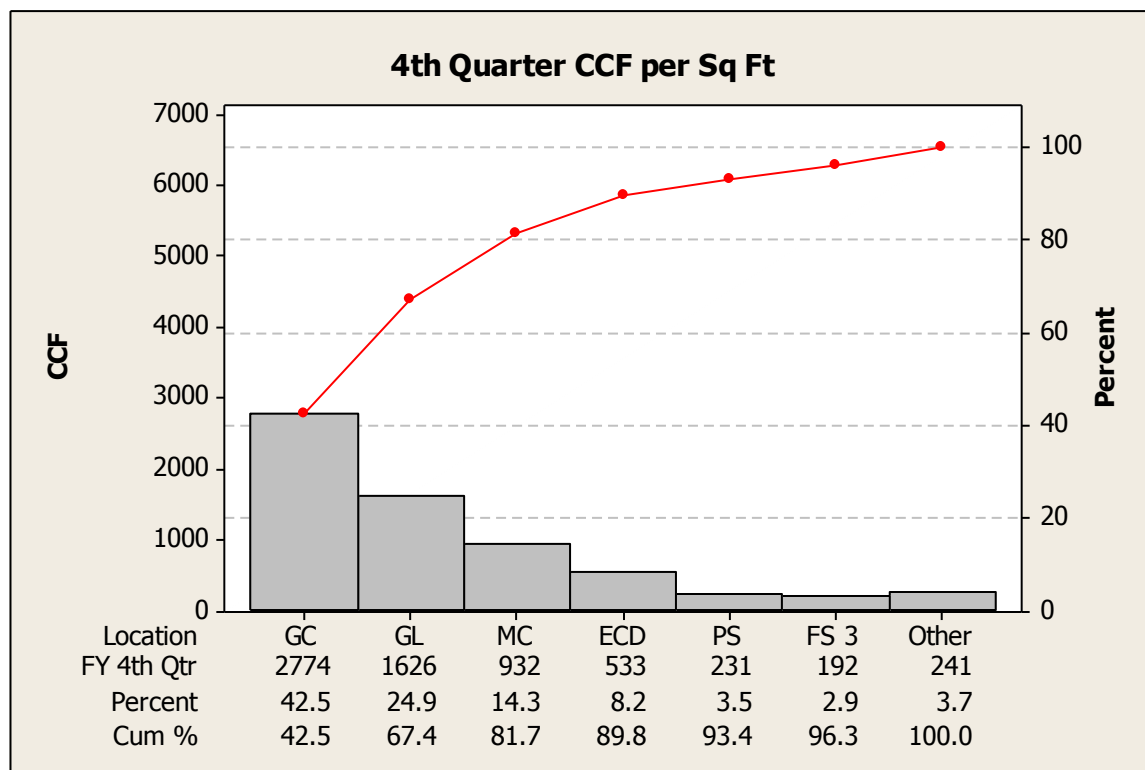
► **Actions** for Number 2 - Reduce CO2 emissions by reducing natural gas:

Performance Measure: Annual Natural Gas Consumption

Target: Reduce usage by 1% by June 30, 2012

Staff Lead: Reynold Douglas and Steve Williams

The chart below shows that the Centre Complex uses 42.5% of all natural gas use for city buildings. To reduce natural gas usage at the Centre Complex, CIP Energy reduction programs must be focused on the Centre Complex to ensure the greatest return on investment (ROI). The overall natural gas usage for City Buildings is 57.5 %. This is a reduction from last quarter due to summer temperatures and the need for heat.



Reports for Dashboard are quarterly. The reports will include natural gas consumption data from MLGW that is measured in column per cubic foot (ccf).

Facilities

- The gas range was replaced with a more efficient electric range during this quarter.
- Set points for summer temperatures have adjusted during this quarter through Building Automated Systems (BAS). Established set points help reduce energy usage, while providing a benchmark for space temperatures.

Completed Actions

- Preventative Maintenance: No preventative maintenance was needed during this quarter.

► **Actions** for Number 3 - Reduce gasoline and diesel fuel consumption:

Key Indicator: CO2 Emissions

Policy Agenda: Develop strategy to reduce gasoline and diesel fuel consumption

Performance Measure: Annual gasoline and diesel fuel consumption

Target: Reduce usage by 3% by June 30, 2012

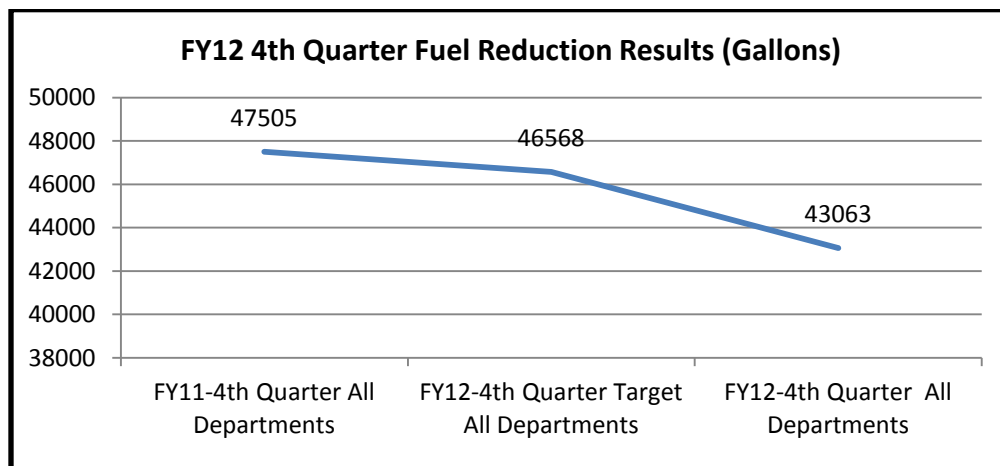
Staff Lead: Eddie Johnson

Department total gallons of fuel consumption comparing FY11 to FY12

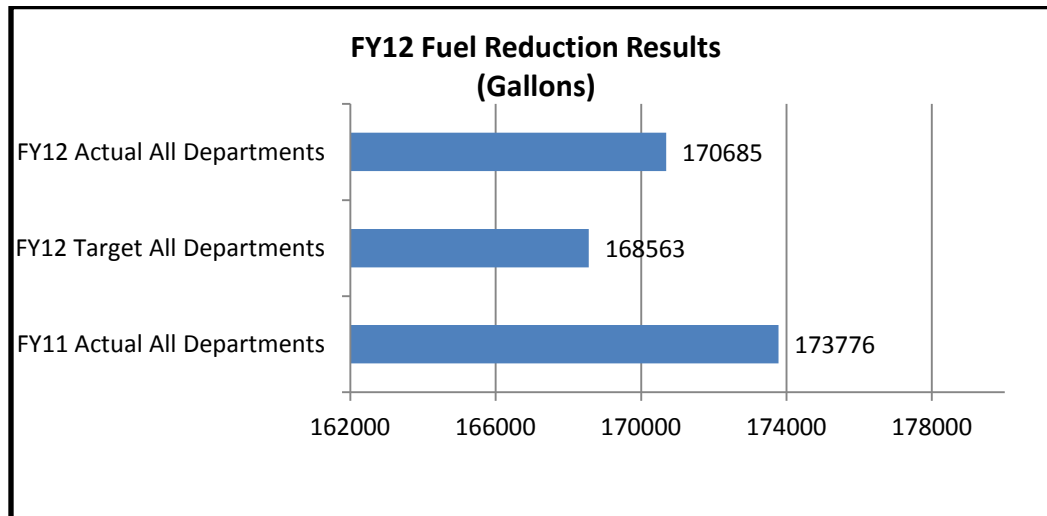
A chart will be created and delivered to individual departments that will show quarterly goals compared to current usage.

There needs to be a department liaison that will be responsible for monitoring the information and communicating this info to responsible parties.

The chart below shows FY11 4th Quarter results, FY12 4th Quarter Target and FY12 4th Quarter Actual.



The chart below shows FY12 Actual Usage, FY12 Target Usage, and FY11 Actual Usage.



The chart below shows by department FY12 1st 2nd 3rd and 4th quarter target results, FY11 and FY12 totals and percent decrease/increase for FY12. Actual FY12 fuel usage decrease of 1.8%.

Department	1st Quarter Target Met	2nd Quarter Target Met	3rd Quarter Target Met	4th Quarter Target Met	FY11 Totals	FY12 Totals	(Gallon) Decrease Increase	(%) Decrease Increase
PS-GRDS	Yes	No	No	Yes	35139	34938	201	-0.6%
GFD	No	No	No	Yes	17385	18846	1461	7.8%
FLEET	No	No	No	No	1215	1426	211	14.8%
CPD	Yes	No	No	Yes	73731	71753	1978	-2.8%
ADMIN	Yes	Yes	No	Yes	951	777	174	-22.4%
DEVELOPMENT	No	No	No	No	4715	5903	1188	20.1%
FINANCE	Yes	Yes	No	Yes	711	730	19	2.6%
GPAC	Yes	No	Yes	Yes	419	259	160	-61.8%
PARKS	No	No	No	No	3168	3573	405	11.3%
FACILITY SERVICES	No	No	Yes	Yes	5208	5129	79	-1.5%
WATER	Yes	Yes	Yes	Yes	20789	16554	4235	-25.6%
SEWER	Yes	No	No	Yes	5727	5716	11	-0.2%
STORMWATER	No	No	Yes	Yes	4047	4473	426	9.5%
ANIMAL CONTROL	Yes	No	No	No	571	608	37	6.1%
					173776	170685	-3091	-1.8%

Completed Actions

- During this quarter repairs consisted of 1,243 jobs with 10% of these jobs directly related to preventive maintenance, emission, air intake and fuel systems which can directly affect vehicle efficiency.
- A total of 20 vehicles were approved for purchase by the BMA in the 3rd quarter. All but three vehicles have been delivered and are in service. Four of the replacement vehicles will be hybrid vehicles; six will be equipped with four & six cylinder engines, replacing the eight cylinder engines that are currently being used. Also one underutilized vehicle in the Fire Department will be eliminated from the fleet.
- One additional hybrid was approved for purchase by the BMA on the 6/25/12.

► **Actions** for Number 1 - Meet or exceed state and federal drinking water standards with no violations.

Key Indicator: Drinking Water Quality Index

Policy Agenda: Meet or exceed State and Federal Drinking Water Standards with no violations.

Performance Measure: State Bi-Annual Water Quality Report

Staff Lead: Danny Hutcheson

- **System Management and Operation**-Water Plant Staff will track and document all facility maintenance, and keep records as required by the State Department of Environment and Conservation.
 - **Fourth Quarter Results:**
 - ❖ Well # 10 is out of service for repairs
 - ❖ Effluent Valves limits were set
 - ❖ Received reports of Black Specs (dead end lines) Flushing lines
 - ❖ SCADA system monitoring near completion

Operator Compliance- All Water Plant Operators are in State Compliance. No License Certification training required this quarter.

- **Fourth Quarter Results:**
 - ❖ TDEC Certified Water Plant Operators: 4
 - ❖ TDEC Certified Distribution System Operators: 4
 - ❖ 8 TDEC Certified System Operators in Full Compliance.
- **Monitor Data Compliance**- All required Water Quality monitoring tests have been completed and submitted to the State Department of Environment and Conservation.
 - **Fourth Quarter Results:**
 - ❖ One Hundred Twenty Three Bacteriological Samples were submitted.
 - ❖ Ninety One Daily Tracking Water Analyses were submitted.
 - ❖ One positive Bacteriological sample collected. Resubmitted as required-no further issues reported.

In Full Compliance.

- **Finished Water Storage-** All required inspections are current. No further inspections due until 2016.

- **Fourth Quarter Results:**

- ❖ 2 Overhead Storage Tanks were inspected in 2009
- ❖ 2 Underground Reservoirs were inspected in 2010
- ❖ Inspection scheduled every 3-5 years

4 Total Water Storage Facilities in Full Compliance.

- **Pump Maintenance-**Daily Pump Maintenance will be performed by Water Plant Staff.

- **Fourth Quarter Results:**

- ❖ 14 Wells and High Service Pump Inspections completed.
- ❖ 14 Routine Pump Shaft Inspection and Lubrication completed.
- ❖ Annual Pump Inspections of Wells and High Service Pumps near completion.

28 Total Service Inspections/Maintenance

In Compliance:

- **Distribution System and Cross Connection-** System checks will be accomplished and records of these inspections will be kept.

- **Fourth Quarter Results:**

- ❖ Routine Water Distribution Service and Maintenance performed this quarter.
- ❖ New 8 inch Water Main on Poplar Ave. installed, tested and in service.
- ❖ Disconnected 6 inch A.C. Water Main on Pete Mitchell installed new Fire Hydrant at end of Water Main.
- ❖ 6 inch A.C. Water Main on Poplar Ave. abandoned and disconnected from active water distribution system.
- ❖ Began installing new 12 inch Water Main on Wolf-River Blvd between Farmington and Kimbrough. Non-active at this time.

In full compliance:

- **Backflow Prevention Program-** Staff will maintain accurate and current records of annual certified backflow testing reports. Backflow preventers within all City Buildings were inspected and tested by Facility Services Staff. Reports were submitted as required to the Southern Water Operations Facility.

- **Fourth Quarter Results:**

- ❖ A total of 1229 Field Backflow Tests have been submitted for 2012.
 - Daily collection of Field Test Data still active

- Deadline to receive Field Test Data set at September 01,2012
- Letters will be sent to remaining known users of Back Flow Devices advising requirements of annual inspection and reporting to Germantown Water Production.
- ❖ Facility Services staff has completed Backflow inspections within all City owned buildings.
- ❖ Total compliance City wide at 41%

Working towards goal of 75 % Compliance

- **Southern Avenue Water Facility:**
 - ❖ Presently working on Punch List for Southern Water Production Facility.
 - ❖ Daily progress being made towards completion.
- **U.S. Geological Survey**
 - ❖ Resent contact with USGA team confirms data requirements and expect data on ground water to be submitted in near future.

Key Indicator: Refuse Reduction

Policy Agenda: Develop strategy to reduce volume of waste entering the landfill.

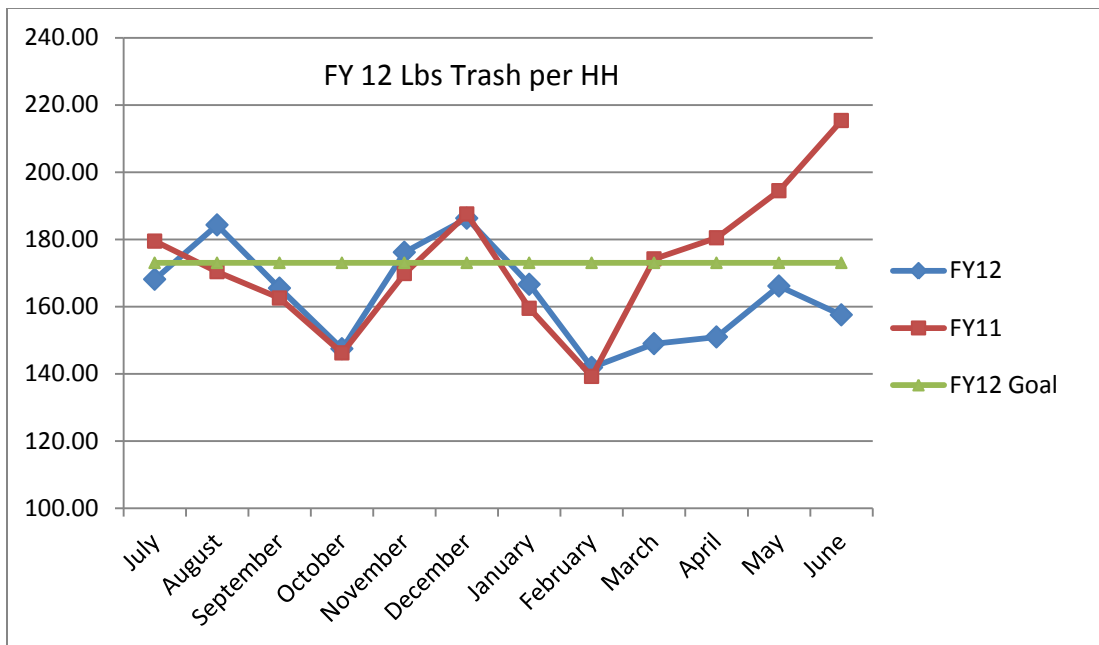
Performance Measure 5: Tons/Lbs of household trash per household

Target is 173 pounds per month or below

► **Actions** for Number 1 - Develop strategy to reduce volume of waste entering the landfill.

FY12 4Q Report:

- Graph below shows the pounds per household per month for FY12 and compares against FY11 and the FY12 goal of 173 lbs per HH per month. Note: Since this is a reduction goal, any item below the goal line is ahead of goal.
- Average volume per household of 158 lbs for the quarter is significantly lower than last year 197 lbs. This variation is significant and may be based upon the fact that the volume reported was during the transition from All Star to Republic/Allied Waste. We will continue to monitor.
- Total volume for the fiscal year is even, which is slightly ahead of national trends that are showing a slight increase in household trash volume.



Performance Measure 6: Tons/Lbs of Recyclables per household

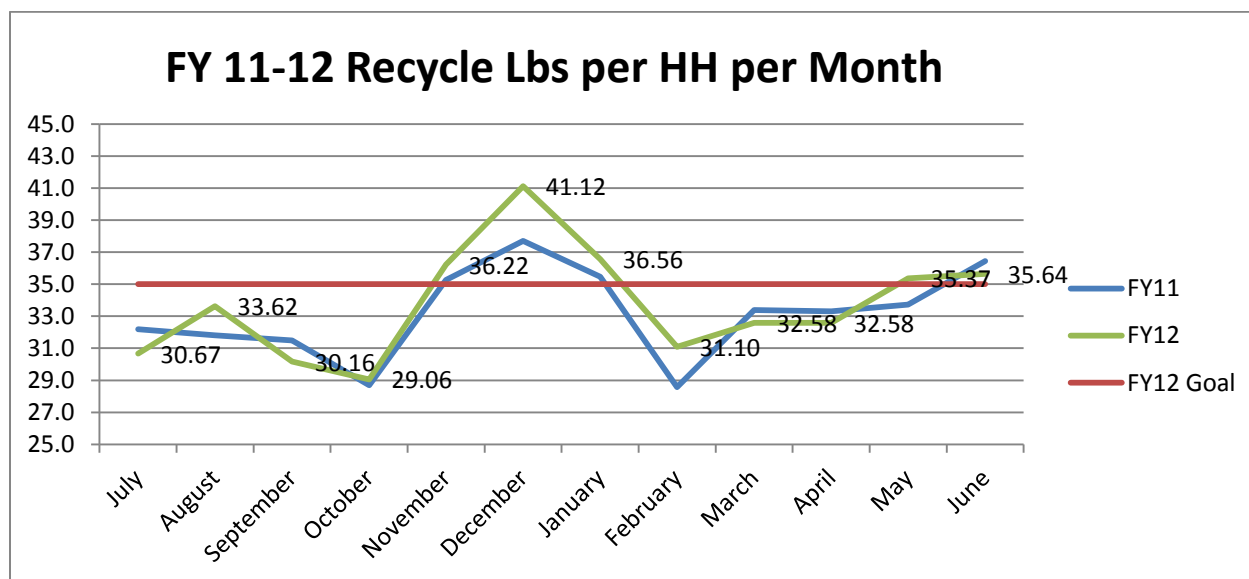
Milestones:

- Target is a 5% increase over FY11. This is shown on the graph on a monthly basis.

► **Actions** for Number 2 - Develop strategy to increase residential recycling.

FY12 4Q Report:

- With delivery of all requested recycling carts complete, the temporary recycling drop-off container for residents without carts was removed at the end of the third quarter. However we have received a number of requests to bring the container back and will likely do that in FY13.
- Volume for the quarter is up 1.0% compared to last year and 2% for the fiscal year. This fell short of the 5% target. The recycling container removal's impact would be a few tons per quarter. The graph reveals that the volume has been very consistent.
- Incentive program will be studied in FY13 after impact of single stream and new roll carts has been analyzed.



Performance Measure 7: Diversion Rate

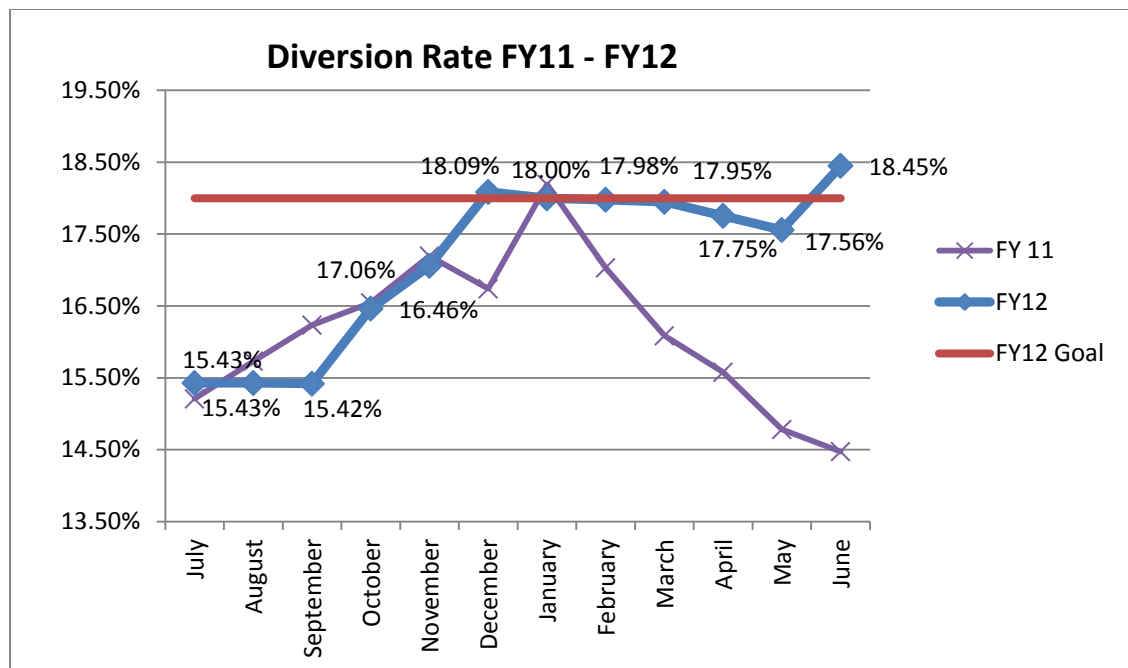
Milestones:

- Target is 18% or above

► **Actions** for Number 3 – Increase solid waste diversion rate.

FY12 4Q Report:

- Graph below reflects FY 12 percentage compared to FY12 Goal and FY11. The 18% goal was based on the unknown impact of the single stream recycling and the launch of an incentive program. The single stream launch was delayed until September, 2011. This is a conservative approach to diversion because it does not include any yard debris totals.
- The diversion rate remained steady in the fourth quarter and again was on target similar to 3Q. In addition it is trending considerably ahead of FY11. This was due to the significant increase in reported household trash volume in 4Q11. It is undetermined what caused the increase.



Key Indicator: Water Quality Index at Wolf River
 Policy Agenda: Stormwater Pollution Prevention
 Performance Measure: Storm water Quality Rating
 Target: Maintain a “Good” or “Blue” rating 70% of the time
 Staff Lead: Tim Bierdz

Water monitoring program for the Wolf River quality index and laterals of the confluence of the Wolf River within the City of Germantown limits. The monitoring plan, based on sound, scientific principles will:

1. Establish a baseline of water quality,
2. Provide data that will establish environmental conditions, thus providing a basis for measuring compliance with environmental regulations, and
3. Ensure that Integrated Pest Management is functioning properly.

Field Methods - Variables, container type, preservation and holding times for water samples are given in Table 1.2.

FY12 4Q Report:

Table 1.2 Variables, Container Type, Preservation, and Holding Times for Water Samples (Analytical methods are from the latest edition of Standard methods or EPA Methods.)					Color - Code Target
Variable	Container Type	Preservation	Holding Time	Target Detection Limit (mg/L)	
pH	not applicable	not applicable	not applicable	0.01 units	Blue
Water temperature	not applicable	not applicable	not applicable	0.1 °C	Blue
Dissolved Oxygen	not applicable	not applicable	not applicable	0.01	Blue
Specific Conductance	not applicable	not applicable	not applicable	0.5 units	Blue
Total - N	P, G	Cool, 4° C, H ₂ SO ₄ to pH <2	28 d	0.02	Blue
Nitrate-Nitrite-N	P,G	Cool, 4° C, H ₂ SO ₄ to pH <2	48 h	0.01	Blue
Ammonia-N	P, G	Cool, 4° C, H ₂ SO ₄ to pH <2	28 d	0.01	Blue
Total Phosphorus	P, G	Cool, 4° C, H ₂ SO ₄ to pH <2	28 d	0.01	Blue
Orthophosphate Phosphorus	P, G	Cool, 4° C, H ₂ SO ₄ to pH <2	28 d	0.01	Blue
Turbidity	P, G	Cool, 4° C, H ₂ SO ₄ to pH <2	48 h	0.1	Blue
Lead	P, G	Cool, 4° C, H ₂ SO ₄ to pH <2	6 months	0.1	Blue
Copper	P, G	Cool, 4° C, H ₂ SO ₄ to pH <2	6 months	0.1	Blue
note that container types are 'G' for glass and 'P' for plastic					

Key Indicator: Natural Resource Management Plan

Policy Agenda: Complete Natural Resource Management Plan

Performance Measure: Complete Natural Resources Management Plan

Target: 100% completion by June 2012

Staff Lead: Pam Beasley

► **Actions** for Number 1 – Complete Natural Resource Management Plan

Performance Measure: Complete Natural Resources Management Plan

Target: 100% completion by June 2012

Staff Lead: Pam Beasley

Milestones:

- Existing plan reviews - Audubon International plan for Wolf River Blvd project; review and natural
- Plan research – collect input from technical and scientific writers
- Plan development
- Plan completion

FY12 4Q Report:

- Staff continued the process of merging the contents three City planning documents which will serve as the core document for the natural resource management plan. The contents include: Environmental Planning; Water Quality Management; Wildlife and Habitat Enhancement; Plant Management and Landscape Practices; Urban Forestry Management; Construction on Public Property – Best Practices.
- Additional research was completed using the US Green Building Council’s “Sustainable Sites Initiative” standards. Some of these practices will be incorporated into the final plan as recommendations and/or considerations.
- The plan includes a description of the Bobby Lanier Farm Park in the landscape practices section. The site will serve as the City’s educational center and demonstration site of sustainability and natural resource management. Implementation and construction of the city’s first sustainable agriculture project was completed this quarter. The Bobby Lanier Farm Park Community Garden is using bio-intensive growing methods and installed a slow pressure drip irrigation system. The water savings vs. traditional hand watering is over 70%. Staff is working to capture actual data and determine first year benchmarks.

